Comments
by
Committee to Bridge the Gap
on

Draft Soil Background Sampling and Analysis Plan
Santa Susana Field Laboratory
Submitted by The Boeing Company
to the California Department of Toxic Substances Control (DTSC)[1]

29 September 2010

Background

Several years ago, during a period of lesser transparency and opportunity for public review and input, Boeing prepared what it described as a background dataset for chemicals for use regarding the characterization and cleanup of the Santa Susana Field Laboratory (SSFL). DTSC staff did not at the time object to the dataset. There was no opportunity for public review or comment.

When the public learned of the matter, concerns were expressed because Boeing had chosen for its "background" locations a number of places that were on the SSFL property itself and thus potentially contaminated, making them inappropriate. Background locations are essentially "control" samples, and in science controls are by definition to be chosen so as to not be potentially affected by the phenomenon being examined. If one is trying to determine whether portions of SSFL are contaminated, it is thus inappropriate to use as controls potentially contaminated locations at SSFL itself.[2] An artificially elevated background value could lead to not cleaning up contamination at SSFL that should be removed.

Concerns about potentially skewed background data employed by Boeing were raised in a study led by Dr. Yoram Cohen of UCLA, performed for the U.S. Agency for Toxic Substances and Disease Registry (ATSDR). Similar concerns were raised by community stakeholders.

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[1] Submitted by Boeing to DTSC on 27 August 2010 on behalf of the three Responsible Parties at SSFL—Boeing, NASA, and DOE. See Boeing transmittal letter to DTSC from Art Lenox of Boeing.

[2] Because releases at SSFL occurred through numerous pathways, including, e.g., airborne release and subsequent fallout away from the original release, assuming that contamination exists only where the footprint of buildings and principal use areas were would not be appropriate. Furthermore, the history of SSFL cleanup efforts has been the repeated discovery of contamination in places where one did not expect it, such as the recent discovery of perchlorate-containing ignitors, asbestos, lead, and other contaminants from SSFL on Sage Ranch property near its border with SSFL.

DTSC thus agreed to perform a new local background study for chemicals, employing locations away from SSFL. It was the community's understanding that because of the potential conflict of interest, and the fact that Boeing had done the original background work that had been called into question, that DTSC would perform the new work.

The U.S. Environmental Protection Agency (USEPA) was tasked, a couple of years ago, with establishing local background values for radionuclides to be used in characterizing contamination at SSFL. It commenced a technical working group that included community stakeholders; DTSC has also participated.

It was understood that the USEPA radionuclide background work and the DTSC chemical background work would be coordinated so as to provide the highest assurance possible that the datasets and their underlying assumptions were compatible. This is particularly important because under SB990—and under traditional USEPA CERCLA practice, which DTSC employs as well under state law irrespective of SB990—risks from chemical and radioactive contamination are to be summed.[3] It is therefore important that there be no apples-and-oranges problem from unnecessarily different methodologies, locations, statistical tests, etc.

Because the geological formation underlying SSFL is primarily Chatsworth formation, with a small portion being Santa Susana formation, USEPA and DTSC aimed to identify undisturbed locations within those two formations at the furthest distance possible from SSFL. With much community input, two Chatsworth-formation background locations and one Santa Susana formation location were identified. A subsequent fire at one of the Chatsworth-formation locations resulted in DTSC disqualifying it as a chemical background location, because the chemical contaminants of concern include combustion products like dioxins and PAHs. Since the radionuclides were judged by USEPA to be likely to be unaffected by the fire, USEPA retained that location for the radionuclide background study.

A year ago USEPA conducted sampling at the background locations. It employed MARSSIM (Multi-Agency Radiation Survey and Site Investigation Manual) guidance prepared by USEPA, DOE, and NRC. It was anticipated that DTSC would simply take splits or co-located samples at the same locations when USEPA took its samples, and send the splits or co-located samples off to laboratories for chemical analysis while USEPA's laboratory was performing radionuclide analyses. Something, however, happened—the community has never been told precisely what—and that plan never was carried out.

Instead, the chemical background work was quietly handed back to Boeing and its contractor, MWH, which had been responsible for the prior background dataset that had been called into question. The community didn't learn of this change for a long time.

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[3] The new agreement-in-principle with DOE would clean up its part of SSFL to background, for both radioactivity and chemicals. The NASA agreement would clean up its part of SSFL also to background for chemicals; the response to radioactive contamination is still being worked out, but it is our view it should be the same. Thus, it is important that background for chemicals and radioactive be determined in as consistent a manner as possible.

And despite the draft document being prepared by Boeing's contractor and transmitted by Boeing, there are stamps of approval, literally, by two DTSC staffers on the cover. This undermines the public participation process, whereby public input is supposedly solicited before DTSC decides to approve the plan.

Additionally, somehow the plan of paralleling USEPA's work with comparable and compatible approaches also was abandoned, again with the community not learning of this for some time. Rather than take samples in the same locations as USEPSA was for its background work (a 1 acre plot in the Chatsworth formation and one in the Santa Susana, the only difference being not employing a third plot that had burned recently), we now learn that Boeing is proposing that samples be taken over two 200-acre plots. Indeed, one of the two huge areas that Boeing proposes be used is in a different area entirely than where USEPA sampled—a revelation we only learned about on September 2. There are also significant differences with USEPA regarding drainage sampling.

All of these discrepancies with the USEPA methodology being employed for the radiological background work are potentially problematic in terms of public health as each divergence from the USEPA approach that has been proposed by Boeing on behalf of the RPs has the potential to artificially skew upward the background values.

Additionally, we were promised that key issues like the statistical approach to determining background and how to deal with matters such as disturbed soil profiles at SSFL would be addressed later, with substantial input from stakeholders. Yet the draft Work Plan by MWH appears to decide, or at minimum pre-judge, these matters now, just between the RPs and DTSC.

Getting background right—and avoiding artificial skewing-- has been made vastly more important in recent days with the announcement of the agreement-in-principle between DTSC and DOE and NASA to clean up Area IV, the Northern Buffer Zone, Area II, and NASA's part of Area I to background. Whatever is determined to be background will become *de facto* the cleanup standard. An artificially elevated background value will result in leaving behind more contamination that should have been cleaned up. Background not determined independently of the RPs will reduce public confidence that a conflict of interest did not impact the background values and thus the cleanup.

We turn now to the proposed Draft Work Plan.

The Draft Plan

Summary of Our Recommendations

We recommend that the Plan be withdrawn and replaced with the originally contemplated approach—take samples where USEPA took its, in the same one acre plots in Lang Ranch and Bridal Path areas, in the same way, and send to a lab or labs of DTSC's choosing for chemical analysis. This would have the advantage of greater consistency with USEPA's measurements and approach and would substantially simplify and speed up the process. The process of

identifying scores of sample locations spread out over hundreds of acres will delay things and produce unnecessary inconsistencies. And we further urge immediate establishing of SB990-compliant detection limits (see 1 below).

If DTSC declines to take the above action, we urge at minimum that the problems identified here regarding the Draft Work Plan be remedied, as discussed in more detail below.

Summary of Problems

1. **Failure to Produce SB990-Compliant Risk-Based Screening Levels and Thus There Are At Present No Relevant Detection Limits, Making Contracting with a Lab Impossible**

The recent revelation, after long assurances to the contrary, that the MWH-proposed detection limits are not compliant with SB990, is really quite stunning and makes it impossible to move forward until the problem is rectified.

In order to do the background measurements, one must contract with a laboratory capable of doing the work. To contract with the lab, one must identify the detection limits the lab needs to be able to meet. The detection limits are, in turn, based on the Risk-Based Screening Levels (RBSLs), which, under SB990, are to be the concentrations that produce a 10^{-6} risk based on the rural residential land use scenario. For radioactivity, EPA has produced a table of these concentrations, the Preliminary Remediation Goals (PRGs), and SB990 requires the use of the EPA PRG table. For chemicals, EPA has no such table for the rural residential scenario, and SB990 thus requires they be calculated, using the same default assumptions EPA used for the radionuclide PRGs.

At a recent DTSC meeting to discuss the chemical background work, I asked if DTSC had confirmed that the RBSLs proposed were in fact SB990-compliant—using the rural residential scenario and the EPA default assumptions for that scenario—and was assured they were. Initially I was told DTSC had calculated the RBSLs, then was told that Boeing's contractor MWH had done so and DTSC had confirmed they were done correctly. I urged DTSC to double-check the matter. That review revealed that the assurances I had previously been given were incorrect.

We now learn—far into the process—that in fact MWH had put forward RBSLs that were not SB990-compliant, that were based on the suburban residential scenario rather than the more protective rural residential scenario. Boeing has spent three years resisting SB990, indeed, filing suit to block the law, and thus has refused to date to calculate RBSLs based on the rural residential scenario, and its contractor MWH has gone along. DTSC, faced with this recalcitrance, has not insisted that MWH calculate the SB990-compliant RBSLs, nor calculated them itself.

This defiance of the law by Boeing and its contractor, MWH, in refusing to employ detection limits that could find contamination at the levels required by SB990 has been troubling from the beginning. But now it appears that this defiance, and DTSC's failure to catch the problem as it relates to detection limits for the chemical background study, will further delay the background

work. One cannot take samples for background if one doesn't have a lab to measure them, and one can't get a lab until one knows what are the required detection limits the lab must be able to meet.

This whole episode—Boeing and MWH refusing to comply with SB990 regarding RBSLs and detection limits, and DTSC's long failure in catching the problem as it relates to the chemical background study—reinforces why the background work must be in the hands of a contractor not beholden to Boeing. Boeing is suing the state to block the state cleanup law. How then can the state possibly hand off to Boeing and its contractor the obligation to determine background based on the very law they are thumbing their nose at?

This baffling situation has, as predicted, now resulted in a situation where the work is delayed again. There are no detection limits determined for the study, so one can't contract with a lab to do the measurements until such limits are calculated. And Boeing and MWH have refused to do so, submitting RBSLs that are irrelevant and violative of the law.

SO, SB990-compliant RBSLs and detection limits must now be calculated independently, based on the rural residential scenario and the EPA default assumptions used for the EPA generic radionuclide PRGs. One can't have Boeing and MWH do that, for they have refused and furthermore shown that their conflict-of-interest is in fact interfering with the work. And there must be full public review of these calculations to make sure they are done correctly.

2. **The Boeing/MWH Draft Mischaracterizes SB990 And/Or The SSFL Situation In Ways That Could Cause Difficulty For The State In The Litigation Boeing Has Brought Against The State**

Letting a corporation that is suing you prepare documents that are issued as though they were documents of the agency they are suing is obviously fraught with potential minefields. In this case, the draft document, with DTSC stamps on the cover, if finalized, can come back to haunt DTSC, as Boeing has slipped into it a number of statements that can cause the state trouble. Some are seemingly innocuous, such as the statement on p.1-2 that "The SSFL is joint owned by Boeing and the federal government and is operated by Boeing." But, of course, this is not true. Some parts of SSFL are owned by the federal government, and other parts by Boeing, but no part is jointly owned by Boeing and the feds. Boeing, in its lawsuit against the state, has been trying to wrap itself in the mantle of the federal government to claim federal pre-emption. This statement asserting joint Boeing-federal ownership, for example, could be quoted in the lawsuit without the rest of the associated paragraph, with an indication that DTSC has approved it.

Additionally, there is language in the draft that mischaracterizes or misrepresents the state statutory requirements (SB990) for cleanup standards. For example, p. 2-16 asserts, "The chemical background study analytical reporting limits will be established as low as reasonably achievable, considering any future land-use scenario and/or receptors, so that the soil background data can be used for SSFL characterization sampling, risk assessment, and cleanup decisions." But that is not quite what SB990 requires. SB990 requires the use of the rural residential scenario, irrespective of what Boeing may claim about future land-use, (or the suburban residential scenario for any particular contaminant where that produces a lower permissible

concentration), and the use of EPA's default assumptions for exposure and receptor employed in its radionuclide PRGs. And SB990 does not permit cleanup decisions to be made choosing which future land-use or receptor should be presumed; SB990 mandates those. These may appear subtle distinctions, but they are ones that could potentially cause the state trouble if this document, prepared by Boeing's contractor, were to be adopted and approved by DTSC. The state should not have to be in a position of vetting every word in a DTSC background sampling plan because it allowed the party suing it to have its contractor prepare the DTSC plan. It is just an untenable conflict.

IMPORTANCE OF KEEPING CHEMICAL BACKGROUND PROCEDURES AND LOCATIONS CONSISTENT WITH EPA'S

3. **Selection of Background Areas Different than EPA's**

A second remarkable revelation at the last meeting was that the background areas proposed for the chemical background work don't parallel EPA's. Rather than sample in the Bridal Path area (Santa Susana formation), DTSC is proposing sampling from a different area entirely, called Wood Ranch. DTSC asserted it couldn't get approval to use the Bridal Path area; but EPA contradicted this, saying they had gotten OK and could assist in DTSC getting approval. We think it is very important that the EPA and DTSC background areas be as much as possible identical (although we support the DTSC decision to not include Rocky Peak for the chemical background work because of the recent fire.).

Secondly, we remain troubled by the other main difference regarding sample areas—that EPA, using MARSSIM, is using one-acre areas for sampling, and MWH proposes using 200 acre areas. The larger area will produce more variance and may result in a higher upper value for background than would be the case using EPA's methodology.

We remain of the belief that it is very important that the chemical background work be done in a fashion consonant with EPA's work. We think the methodologies should be identical.

4. **Ravine Measurements**

EPA has chosen not to take background measurements in ravines, expressing a number of technical concerns and reasons why they didn't feel such measurements made sense at this time. We are concerned that once again the MWH draft proposes a significant difference with EPA. Because of MWH's indications of the intent to potentially combine datasets (e.g., flat areas combined with ravines), the focus on the ravines, at variance with EPA's effort, is troubling.

We also note that the number of samples seems skewed and not meeting the minimum totals specified, as discussed at the last meeting. The issue of ravines needs to be coordinated with EPA, kept comparable, and discussed much more with stakeholders before a decision is made.

5. **Staking**

We remain concerned that the MWH approach could result in precise sample locations being selected in a way that could skew upwards the background values. Additionally, it makes no sense to us for locations to be staked significant periods prior to actual measurements. Control would be lost if proposed locations are flagged; one wouldn't have assurance that in the interim before sampling actually is performed someone hasn't gone to those flagged areas and added some constituents of concern. From a chain of custody and control standpoint, this seems a poor procedure.

6. **Statistical Test**

We have been promised repeatedly that the statistical tests to determine what is background would be resolved at a later date, after significant public input. However, the MWH draft states the opposite—that the statistical test will be as follows: "The single-point comparison statistic proposed for the chemical background study is the 95% upper tolerance limit (UTL) about the 95th percentile (95/95 UTL), a value such that there is a 95% confidence level that 95% of the samples will be less than the UTL value." p. 2-11 While there is subsequently a statement that the final statistical test will be set when the data are in, elsewhere (table 1-1) one finds an unqualified statement: "The background statistic identified for use at the SSFL is the 95% upper tolerance limit about the 95th percentile (95/95)."

We also note that the statistical test put forward by MWH is not simply a 95% upper confidence level, but a 95% confidence level that the 95% upper limit is correct (95% confidence that the 95th confidence interval is correct, a standard that would push up the background value chosen compared to a more traditional 95th upper confidence level test. This has not been agreed to, and it is troubling that it is in the text.

7. **Combination of Datasets**

The draft plan repeatedly argues for and implies that background datasets—surface and depth, flat areas and ravines, Chatsworth and Santa Susana formations, and the earlier dataset that included onsite measurements and poor detection limits and the new data—should be merged. This isn't appropriate in this Plan, nor for Boeing's contractor to be so arguing. Our understanding is that one wasn't going to merge them; at minimum, that that matter wasn't to be addressed now, and that the public would have input when the time came.

8. **MWH Attack on the Very Purpose of the New Measurements**

The new background study is being conducted because of criticisms of MWH for having used locations for its prior background study that could be potentially contaminated, including on-site locations and close-in locations. We understand it must be galling for MWH to face that criticism and the fact that DTSC has decided to do a new background study that is done right. That, of course, is another reason not to have allowed MWH to prepare the new background study if it did the former study in a questionable way. But at least if it is to do the new one, it should "get with the program." Instead, it spends page after page defending the prior, discredited

study and implying that the need to do a new study—for which this draft is the sampling plan—is stupid. That material is inappropriate, in essence having the contractor attack the very project it is being paid to carry out, the agency that ordered it and the community that requested it. It reinforces the concern about MWH doing this work, and at minimum should be struck from the text.

9. **Inappropriate Arguments About Mixing of SSFL Soils in Order to Push for Merging Datasets (and Thus Artificially Elevating Background and Reducing Cleanup)**

Substantial sections of the draft Background Sampling Plan have nothing to do with the background sampling but amount to gratuitous arguments, beneficial to MWH's employer Boeing, that SSFL soils were mixed and implying that therefore one should combine background datasets (surface and subsurface, one formation with another, ravines and flat areas) and use the upper limit from the combined dataset as background for all the different formations, depths, and topographies. This would result in an artificially elevated background. Again, Boeing's contractor should not be misusing a sampling plan as a forum for advocating for how to treat the data, particularly in a way that could result in lowered cleanup.

Conclusion

It is hard to understand how this process got so far off track. The public thought that DTSC—not Boeing's contractor that had done the prior work that had been found questionable—would do the chemical background work. The public thought the work would be done in coordination with EPA, using the same locations and approaches to the maximum extent possible. When EPA took its samples for radioactivity, we understand DTSC would receive splits or co-located samples, send them to a lab independent of Boeing, and get measurements, all consistent with EPA's radioactive background work. And the public understood that DTSC had established detection limits based on SB990 requirements, so the labs would be requested to meet those limits. Somehow none of this ever happened. Had it happened, we presumably would have the chemical background data in hand.

One can't even start the process until one has the appropriate RBSLs and detection limits, fully vetted. Perhaps the delay caused by the refusal of Boeing and its contractor MWH to produce these values and of DTSC to address and resolve the problem can be used to remedy the other problems, identified above.

Thank you for the opportunity to submit these comments.